

MISSOURI. Conservationist

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Get Into the Forest

Have you ever wondered how many trees are in Missouri? Perhaps you have noticed trees dying or had concerns about the health of the trees and woods in your community or county. Have you

questioned which trees are the most important to Missouri and why? Curious as to whether our forest is important to whitetail deer, wild turkeys, songbirds and other wildlife? Well, you are not alone. I and most professional foresters ask ourselves the same questions. The good news is we now have an answer to many of these questions, or at least have a plan to answer them in the future.

The Conservation Department recently completed a two-year project called the Missouri Forest Resource Assessment and Strategy. It was designed to evaluate statewide forest conditions and how they relate to threats and opportunities influencing forest health and productivity. It also includes a comprehensive strategy and potential action items for sustaining our forest for the well-being of our kids, grandkids and generations to come. For the purpose of the Forest Resource Assessment and Strategy, the term “forest resource” is all-inclusive of trees in towns, the woods on your property and publicly owned forestland. The word “forest” represents the statewide tree resource regardless of ownership.

You may be wondering, why now? Why is it suddenly important to invest this much effort into a process and document that focuses on the forest resource in Missouri? There are several reasons. In May of 2008, the U.S. Congress passed the latest version of the federal Farm Bill, which includes a requirement for each state to develop a statewide forest resource assessment and strategy in order to continue to make federal forestry programs available to private landowners. Because these programs are important in assisting Missouri’s communities and landowners with the care of their trees and woods, the Department considered the completion of the Forest Resource Assessment and Strategy a high priority. Our Missouri forest is under increasing

pressures created by recent discoveries of new exotic and invasive insects, diseases and plants; increased land clearing that results in fragmented habitat for wildlife; and potential new markets for wood products. In light of these pressures, and the fact Missouri could significantly benefit from a statewide assessment and plan for our forest, the timing could not have been better.

The Forest Resource Assessment and Strategy is guided by three important priorities: 1) conserving working forest landscapes, 2) protecting forests from harm and 3) enhancing public benefits from trees and forests. The results reveal our forest resource is at a unique crossroads. While Missouri’s forest is increasingly threatened, it offers tremendous potential to alleviate many of our most pressing social and environmental challenges. Properly addressing these threats and opportunities is far more than any one agency or organization can tackle on its own. This complex task will require unprecedented levels of collaboration and partnership between conservation agencies, nongovernmental organizations, the forest industry and dedicated individuals. It will also necessitate increased public awareness of the importance of our trees, woods and forests, and public involvement in activities that enhance their sustainability. The Forest Resource Assessment and Strategy serves as the catalyst to make this happen, but, more importantly, it is a call to action. This issue of the *Conservationist* will introduce you to the Forest Resource Assessment and Strategy and its results. It is my hope that the following articles will draw attention to the amazing benefits our forest provides to each citizen and inspire you to get into the forest.



Lisa Allen, state forester

OUR MISSION: *To protect and manage the fish, forest and wildlife resources of the state; to serve the public and facilitate their participation in resource management activities; and to provide opportunity for all citizens to use, enjoy and learn about fish, forest and wildlife resources.*



FEATURES

- 10 **Our Precious Forests**
by Gus Raeker
- 12 **A Natural Treasure**
by Gus Raeker
Missouri's forests keep us healthy and happy.
- 16 **Forces of Change**
by Gus Raeker
Altered fire patterns, pests, poor harvesting practices and demographic shifts all challenge the sustainability of Missouri's forests.
- 22 **Get Into the Forest!**
by Gus Raeker
Even if you don't own woodlands, you can help Missouri's forest resources.
- 28 **Elk History and Restoration**
The plan to reestablish elk in a defined area will be proposed to the Conservation Commission in October.

Cover: Missouri's precious forest by
Noppadol Paothong
Above: Family hiking in the forest
by David Stonner

MISCELLANY

- 2 **Letters**
4 **News & Events**
7 **Ombudsman**
32 **Hunting and Fishing Calendar**
32 **Contributors**
33 **Agent Notes**

STREET TREES

Graham, Miller and Stonner are all to be highly commended for

the excellent article in your July issue about how we take our trees for granted and enjoy them without realizing what a financial asset they are to our communities [*Street Trees Pay Us Back*].

Brought up in a small town in Ohio in the 1930s and '40s, I was accustomed to trees lining most of our streets and loved them without ever thinking how very different the place would look without them. Later, living in Rochester, NY, we also had great mature elms lining many of our streets. I'll never forget the feeling of desolation we experienced when the Dutch elm disease

killed off those beautiful elms on Goodman Street. That street was naked for quite a few years before new, different trees could be grown there. Nobody wanted to live there any more, and you can imagine what that did to real estate values and, eventually, indirectly to taxes.

People so often kick about city taxes. The points you made about how well-kept trees affect our taxes will be an eye-opener to many who have never considered them in that light.

James F. Whitacre, Columbia

Many thanks for the good article on street trees. Let me offer two comments. First, when considering where to plant street trees, take into account where underground utilities are located—water, sewer, gas, electric, phone, cable TV and fiber optic lines. It is very disappointing to have a backhoe rip out a good tree to make necessary repairs on a leaking water or gas line. Check

for recorded utility easements and call Dig Rite before planting. Second, consider overhead lines. A tree planted under overhead lines becomes an expensive problem for the utility and can cause outages during wind and snow storms. Plus, a tree with its top half sheared off just doesn't look good! For trees that can grow for decades, a few hours of planning is time well spent.

*Dan Overbey, Semo Port
Southeast Missouri Regional Port Authority, Scott City*

A SAFE BARRACUDA

I was thrilled when I opened my July issue. On Page 4 is a wonderful picture of a young man and his father enjoying a canoe trip together. This young man, Atul, is a member of the Jefferson City Barracudas swim team. As a USA swim coach, Red Cross water safety instructor, and YMCA swim instructor, I was so proud of this father and son for wearing their life jackets. We teach water safety constantly, but too often people feel that they are "good enough" swimmers, and therefore do not need a life jacket. However, especially during the summer months, we read of drownings that occur because someone was not wearing a life jacket. I just wanted to applaud this family's great water safety skills. Have a wonderful and safe summer!

Ronnie L. Phelps, via Internet

CATFISHING CULTURE

Really nice piece comparing bass and catfish tournaments [*Catfish Tournaments*; July]. Funny and entertaining. Eating a sandwich after handling stink bait—not something I could stomach. I live on a farm and get lots of distasteful stuff on my hands, but soap and water is a must before eating. I guess I'm a pansy. I hope to read more of Jim's work in the future.

Tom McSparren, Odessa

I must admit, I never really cared much about catfish tournaments, but I still liked your article! Also, did the catfish tournament really have a polygraph?

Jodi Pfefferkorn, via Internet

Editors' note: Yes. Polygraphs are actually not uncommon at fishing tournaments.



Reader Photo

TAILS IN NATURE

Kristina Oswald of St. Louis captured this photo of a bullfrog in the final stages of metamorphosis from tadpole to froglet. Tadpoles turn into froglets in about 11–14 months, but adult size isn't reached for another 2–3 years. Oswald made this photograph at a pond in Tower Grove Park in St. Louis, which is among the several natural areas she frequently visits to hike and photograph. Oswald has pursued photography as a hobby for about three years and is a member of the St. Louis Camera Club.



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Promising Duck Season, Quick Draw on the Horizon

Missouri hunters have reason for optimism about the upcoming waterfowl season, and those who plan to hunt at three of Missouri's most popular managed wetland areas will be trying a new reservation system designed to optimize hunting opportunities.

Summer surveys of the north-central United States and central Canada showed good nesting habitat and good numbers of ducks again this year. The number of ponds was up 4 percent from last year and 34 percent above the long-term average (LTA).

Blue-winged teal showed the only statistically significant population change from 2009, with a 14 percent increase. Blue-winged teal now are 36 percent above the LTA. Mallard, gadwall,

widgeon and green-winged teal numbers were about the same as last year. Mallard numbers were 12 percent above the LTA, and the total number of ducks was 21 percent above the LTA.

Hunters will take part in a trial of Quick Draw, a new, online waterfowl hunting reservation system, at Grand Pass Conservation Area (CA) in the North Zone and at Eagle Bluffs and Otter Slough CAs in the Middle Zone this year. The Quick Draw system will begin accepting applications eight days before the Saturday season opener in each zone. The first drawing will take place on the Monday before opening day and will award reservations for the first three days of the season, Saturday through Monday. After that, Monday drawings will award reservations for Friday through Monday. Applica-

tions will be open from Monday through Wednesday for weekly drawings to assign reservations for Tuesday through Thursday.

Quick Draw will handle reservations for handicap-accessible blinds at the three Quick Draw pilot areas. The trial will not affect youth hunts, which will be handled as in the past.

This year's limited trial of Quick Draw will enable the Conservation Department to evaluate whether the system achieves its goal of making hunting more convenient and accessible to more hunters. Depending on how well it works, the system could be modified and expanded to other state-managed wetland areas. More information about Quick Draw is available at bit.ly/a5wp1q.

Natural Areas Conference

Missouri is hosting the 37th Natural Areas Conference Oct. 26 through 29 at Marriott's Tantara-A Resort, Osage Beach. The Conference theme, "Connecting for the Future Across Generations and Disciplines," brings together natural resource professionals, students and volunteers in a forum that provides practical, land management information through symposia, workshops, field trips, paper sessions, posters, round tables and opportunities for social networking. The conference draws land managers, university faculty and students, researchers, planners and administrators from throughout the nation. To register or learn more about the conference, visit: www.naturalarea.org/10conference, or contact Mike Leahy at 573-522.4115, ext. 3192, mike.leahy@mdc.mo.gov.

Conservation Auction

Regulars at Conservation Department surplus-property auctions will find procedures a little different at the next auction Oct. 16 in Salem. Master Card and Visa debit cards are acceptable with a valid driver's license as identification. Identification is unnecessary for purchases with cash or cashier's checks.

Credit cards and personal checks are acceptable with the buyer's valid driver license as identification. However, vehicle, outboard motor, trailer or boat titles will be held until checks clear. Tractors and heavy equipment also will be held until checks clear.

Auto dealers must present copies of dealer certificates and valid driver licenses as identification. A person acting as an agent for a dealer must have a signed letter from the dealer stating they have permission to purchase items under the dealer's name. A copy of the dealer's certificate must be supplied along with the presentation of a valid driver license as identification.

Only the name of the person who is registered with the auction as a bidder will be put on titled items. If a vehicle or other titled item is being purchased for someone else, the bidder must register under that person's name. If a vehicle or titled item is being purchased for a business, the bidder must register under that business name.

Sales of all titled items will be reported to the Department of Revenue.

Auctions include items ranging from office equipment to trucks, sport-utility vehicles, sedans, boats, farm implements, tractors and heavy equipment. A full list of items in the October auction will be available in mid-September at www.MissouriConservation.org/node/3454, or by calling 573-522-4115, ext. 3279 or 3283.

Popular Trapping Clinic Returns

Missourians who are intrigued by the idea of trapping minks, raccoons, otters and other furbearers but don't know how to get started have a golden opportunity at a free trapping clinic Oct.

16 and 17 at Swan Lake National Wildlife Refuge. The clinic, cosponsored by the Conservation Department, the Missouri Trappers Association and the U.S. Fish and Wildlife Service, will cover all aspects of trapping, from equipment to ethics. Participants will make actual trap sets on Saturday and check them on Sunday morning. Food and onsite camping for the event are provided free of charge. Eighty-four people participated the last time this event was offered in 2008. To register for the clinic, call 660-856-3323 or visit www.fws.gov/midwest/swanlake.

(News & Events continued on Page 6)

Three State Fishing Records Fall in July

Three record catches in July focused national attention on Missouri's world-class fishing. Two of the fish might qualify as world records. For full details, see www.mdc.mo.gov/newsroom/its-raining-records.

TOP RIGHT: Robert Neal Davidson set a new state alternative-methods record when he caught this 99-pound flathead catfish from the Missouri River near Mokane July 23. He was using a bank pole. With him in this photo are his son, Drake, and father, James L. Davidson, both of whom were with him when he boated the monster fish, which was 53 inches long and had a girth of 35 inches.

BOTTOM RIGHT: John West, of Republic, caught this Missouri pole-and-line record striped bass at Bull Shoals Lake July 8, using a swim bait. The fish weighed 58 pounds, 10.4 ounces, and measured a little more than 48 inches from nose to tail. It might qualify for a 30-pound line-class world record.

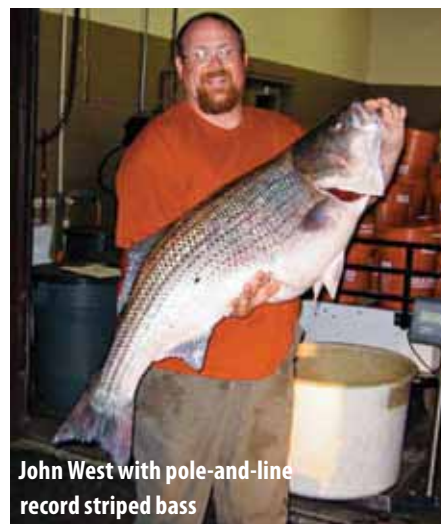
BELOW: Greg Bernal, of Florissant, caught this Missouri pole-and-line record blue catfish from the Missouri River near Columbia Bottom Conservation Area July 20. The fish was 57 inches long, 45 inches around and weighed 130 pounds, making it the potential world record as well.



Robert Neal Davidson
with alternative methods
record flathead catfish



Greg Bernal with pole-and-line record blue catfish



John West with pole-and-line
record striped bass

Help Protect Missouri's Waters From New Invasive Alga

Didymosphenia geminata (Didymo or "rock snot") is an invasive alga that can form large mats on the bottom of lakes and streams. Didymo can grow in layers so thick that it smothers the aquatic life in the stream vital to the food chain that supports fish such as rainbow and brown trout. Didymo has been found in the White River in Arkansas, but so far Didymo has not been found in Missouri.

Preventing the occurrence and spread of this invasive species is critical to the health of Missouri's lakes and streams. Recreational equipment such as boats, lifejackets and fishing gear (particularly waders) is the most likely way for Didymo to spread. Prevention measures include "Check and Clean or Dry."

- Check all gear and equipment that has been in contact with the water and remove any visible algae.
- Clean all equipment with a 2 percent household bleach solution, 5 percent saltwater solution, or dishwashing detergent and allow all equipment to stay in contact with the solution for at least one minute. Soak all soft items, such as felt-soled waders and life jackets, in the solution for at least 20 minutes.
- Expose all equipment to sunlight and dry for at least 48 hours.

Replacing felt-soled waders with waders that have rubber or synthetic soles will also minimize the risk of spreading Didymo and other invasive species. Manufacturers are now offering waders with alternative soles that grip slippery rocks as you wade, but minimize the risk of transporting this troublesome invader. —by Shane Bush



Invasive alga didymo has been found in Arkansas waters near Missouri.



Deer Season Notes

A few deer hunting regulations have changed from last year, and hunters need to be aware of some other items before going afield. The complete *2010 Fall Deer & Turkey Hunting Regulations and Information* booklet PDF can be downloaded at www.MissouriConservation.org/node/3656.

- Hunters can use as many antlerless deer tags as they want in Gasconade and Osage counties. These counties also are open to hunting during the antlerless portion of firearms deer season.
- Hunters can use atlats to hunt deer during all portions of the firearms deer season except the muzzleloader portion.
- Only antlerless deer may be taken during the urban portion of firearms deer season Oct. 8 through 11. This is not new, but some hunters remain unsure of this provision.
- Mussel Fork Conservation Area (CA) in Linn and Macon counties is open to hunting under statewide regulations.
- The Conservation Department will conduct a voluntary CWD surveillance effort in Chariton, Linn and Macon counties and parts of Adair, Randolph and Sullivan counties. Hunters in this area are encouraged to take their deer to collection sites during opening weekend of the November deer season. Tissue sampling will not reduce the food or taxidermy value

of deer. A special section on Page 3 of the fall deer and turkey booklet shows the boundaries of this area and locations where hunters can bring deer for testing.

- To keep chronic wasting disease from spreading, hunters who bring deer, elk or moose with the spinal cord or head attached into Missouri must call 877-853-5665 within 24 hours and take the carcass to a licensed meat processor or taxidermist within 72 hours. Meat processors and taxidermists must dispose of the spinal cord and other parts in a properly permitted landfill.
- Changes in regulations on some CAs also are

detailed on pages 34 through 42 of the fall deer and turkey hunting booklet. If you hunt on a CA, check to see if regulations there have changed.

- The phone number for Squaw Creek National Wildlife Refuge on Page 20 of the fall deer and turkey booklet is wrong. The correct number is 660-442-5754, ext. 13.

Wildlife Grants 10th Anniversary

Ten years ago, after years of lobbying and with much fanfare, Missouri and other states began receiving federal funds through the State Wildlife Grants (SWG) program. Missouri played

an important role in the national Teaming With Wildlife (TWW) coalition that secured the funding.

The idea is to keep common wildlife species common and conserve dwindling species before they become so rare that recovery is prohibitively expensive. To date, grants totaling \$617 million have gone to state wildlife programs, including \$12.5 million for Missouri.

Matching funds from the Conservation Department and private partners leveraged federal funds, boosting the actual benefit to Missouri conservation programs to nearly \$40 million.

(continued on Page 8)



ASK THE OMBUDSMAN

Q: Can you explain the method of predicting the severity of the coming winter by cutting open persimmon seeds?

A: I can't vouch for any accurate forecasts from the method,

but I can explain it. Female persimmon trees will begin ripening their fruits in late September. Each fruit contains from three to six seeds that are oval shaped, flattened and about three-fourths of an inch long. If you cut the seeds lengthwise, like you would separate the two halves of a bean, each will have a small structure within that is the plant embryo. The split embryo may resemble a knife, spoon or fork. A knife indicates a cold, icy winter (wind that cuts through you like a knife). A spoon indicates lots of snow (think of the spoon as a little snow shovel). A fork indicates a mild winter.

Q: What is the difference between a conservation area and a natural area?

A: Conservation areas (CAs) are properties owned and managed by the Conservation Department for Missouri's citizens. Some of the smaller ownerships, such as office sites and river accesses are not referred to as CAs. Several years ago, we combined "state forests" and



Persimmon seeds

"state wildlife areas" under the common term of CAs. Natural areas (NAs) are places that have been specially designated as representing the best examples of Missouri's landscape and have one or more kinds of high-quality "natural communities" present, such as forests, glades, prairies, streams, wetlands or caves. NAs are designated by a state multi-agency committee and may occur on CAs, other public lands or on private land. For more information on NAs, visit www.MissouriConservation.org/discover-nature/places-go/natural-areas.

Ombudsman Tim Smith will respond to your questions, suggestions or complaints concerning Department of Conservation programs. Write him at PO Box 180, Jefferson City, MO 65102-0180, call him at 573-522-4115, ext. 3848, or e-mail him at Ombudsman@mdc.mo.gov.

That money funded more than 560 projects in every part of the state. SWG money is helping protect or restore prairies, glades, forests, wetlands, savannas, lakes, rivers and caves. SWG funds also have supported research, private landowner assistance and strategic conservation planning.

The work continues, and you can help. Citizen conservation or sporting groups, businesses and other organizations can join the TWW coalition at no cost, increasing its national clout. To join TWW, or for more information, visit: www.con

fedmo.org/teaming, or contact Dennis Figg at 573-522.4115, ext. 3309, dennis.figg@mdc.mo.gov.

Protecting Streams

An independent study by university scientists showed that use of forestry best-management practices on conservation areas (CAs) prevents erosion and protects streams.

Critics of timber harvesting say that removing trees causes soil erosion and impairs water quality. The Conservation Department developed

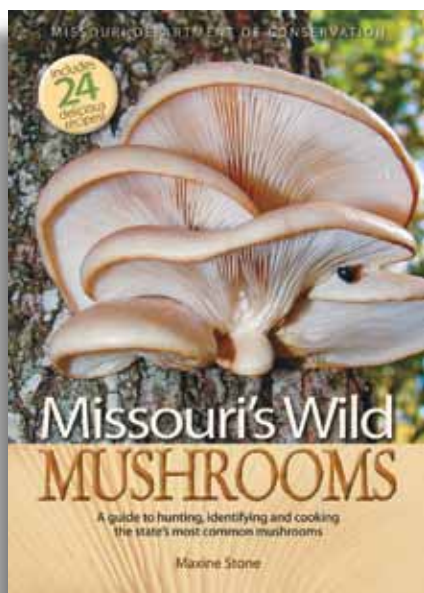
best management practices (BMPs) to address these concerns but until recently did not know how well they worked. A professor of civil and environmental engineering at the University of Missouri conducted a seven-year study to answer that question. Researchers examined the amount of sediment entering streams on CAs before, during and after timber harvests. The study also tracked 11 other measures of water quality, including nitrogen and phosphorus compounds.

Field work occurred in 2008, the wettest year in Missouri history, providing the ultimate test of BMP's erosion-stopping power. Researchers found no significant difference in erosion between harvested and unharvested sites.

The study has huge implications for better management of Missouri forests. More than 80 percent of Missouri's forestland is privately owned. Unlike CAs, most of this land is not under active management. This is partly because landowners are concerned timber harvests will harm their forest. Evidence that trees can be harvested in an environmentally responsible way could lead to more active management of private forests, with benefits for wildlife and landowners.

To learn how the Conservation Department manages its forests to protect streams and water quality, download a PDF of this booklet mdc4.mdc.mo.gov/Documents/20867.pdf.

New Books Explore the World of Mushrooms, Herps



The Nature Shop recently introduced two new must-have books for people who are fascinated by mushrooms and crawly things.

Show-Me Herps: An uncommonly colorful guide to 50 cool amphibians and reptiles in Missouri is a pocket-sized, 152-page guide with gorgeous color illustrations. Snakes, skinks, lizards, turtles, salamanders, frogs and toads all are represented, along with a wealth of information about where and how they live and how they affect our lives. The price is \$7.95 plus sales tax and shipping and handling.

Another amazing addition to the Conservation Department's book selection is *Missouri's Wild Mushrooms: A guide to hunting, identifying and cooking the state's most common mushrooms*. If names like Dead Man's Fingers, Wolf's Milk Slime, Fairy Ring, Big Laughing Gymn, Blusher and Destroying Angel make you

wonder, this is where to satisfy your curiosity. The 185-page book provides clear color photos of these and dozens more fungi, along with detailed information about edibility, when and where they are found and look-alike species. There are even tips on preserving mushrooms and recipes such as "Shrimp Parmesan with Cinnabar Chanterelle Garni," "Salmon with Black Trumpet Sauce," and "Chanterelle and Bacon Pizza." The price is \$14 plus sales tax and shipping and handling.

To order either book, call toll free 877-521-8632 or visit www.mdcNatureShop.com.



Beat the Hunter Education Rush

If you need to attend a hunter education class and haven't enrolled yet, do it now! The longer you wait, the greater the chances that classes will be full. To find a class near you, visit <http://bit.ly/9dxTLV>. You also can take the hunter education course online at www.hunter-ed.com/mo/. People born on or after Jan. 1, 1967, must complete an approved hunter education class or buy an Apprentice Hunter Authorization before buying hunting permits. Most hunters also need hunter education to mentor hunters who are not certified and not hunting on a landowner permit. Taking a hunter education class with a youngster, even if you are not required to, is an excellent bonding opportunity and helps set the tone for safe, ethical hunting experiences that build relationships and positive character traits.



MDC's office in Kirksville has earned EPA ENERGY STAR certification. It's one of only 28 offices in Missouri to earn the award.

Northeast Regional Office Receives ENERGY STAR® Award

The Missouri Department of Conservation's (MDC) Northeast Regional Office recently earned U.S. Environmental Protection Agency's (EPA) prestigious ENERGY STAR award.

The facility at 3500 S. Baltimore in Kirksville received the ENERGY STAR award for incorporating energy-efficient technologies into its construction and maintenance. These include geothermal heating, maximizing the use of natural daylight, efficient use of artificial lighting through dimmers and motion sensors, energy-efficient heating-ventilation-and-cooling (HVAC) systems, a highly efficient structural insulated panel system (SIPS) for the building and processes that assure all equipment is operating as efficiently as possible.

ENERGY STAR certification is the national symbol for protecting the environment through superior energy efficiency. To qualify, buildings must perform in the top 25 percent of similar facilities nationwide for energy efficiency. The MDC facility joins only 27 other office buildings and a total of 93 facilities in Missouri to receive ENERGY STAR designation.

The Kirksville facility received a rating of 79 on the ENERGY STAR performance scale. This

measurement helps organizations assess how efficiently their buildings use energy relative to similar buildings nationwide. A building that scores a 75 or higher on EPA's 1-100 scale is eligible for the ENERGY STAR certification.

"The Conservation Department is pleased to accept the EPA's ENERGY STAR award in recognition of our energy-efficiency efforts," says MDC Director Robert Ziehmer. "This achievement highlights our continued commitment to conservation stewardship and wise use of funds through lowering energy costs."

MDC Design and Development Division Chief Jacob Careaga added that the state agency is broadening its efforts to improve energy efficiency at other MDC offices and nature centers throughout Missouri by 20 percent over the next five years.

These energy-reduction efforts include simple actions, such as reminding employees to turn off lights, computers and other equipment when not in use. Other efforts include improved energy efficiency of HVAC systems and installing more energy-efficient lighting. Larger scale efforts include maximizing energy efficiency for new MDC facilities and for renovations of existing facilities.

"We use energy-conservation measures as much as possible in new construction and in renovations," says Careaga. "These measures range from making sure that existing systems are operating as efficiently as possible to drilling wells for geothermal heating, utilizing natural daylight as much as possible, installing motion-sensor lighting and selecting more energy-efficient equipment for replacement."

Commercial buildings that earn the ENERGY STAR award use an average of 35 percent less energy than typical buildings. Commercial buildings that can earn the ENERGY STAR include offices, bank branches, financial centers, retail stores, courthouses, hospitals, hotels, schools, medical offices, supermarkets, dormitories, houses of worship and warehouses.

The EPA introduced ENERGY STAR in 1992 as a voluntary, market-based partnership to reduce greenhouse gas emissions through energy efficiency. Last year alone, Americans, with the help of ENERGY STAR, saved nearly \$17 billion on their energy bills while reducing the greenhouse gas emissions equivalent to those of 30 million vehicles.—by Joe Jerek





Our Precious Forests

BY GUS RAEKER

Missouri's forests make possible, or at least provide a backdrop for, almost all outdoor experiences. Missouri's 15.4 million forested acres are a precious resource. Our forest resources, which cover more than one-third of our state, provide us with clean air and drinking water, lumber and heat, habitat for an incredible diversity of plants and animals, a myriad of recreational opportunities and—of course—scenic beauty.

In today's fast-paced, high-tech world, we sometimes lose sight of the fact that it's our trees and forests that often support our quality of life. It is even easier to forget that our actions or inactions with respect to trees on our private and public lands can have powerful effects on these important resources.

Forest Resource Assessment and Strategy

Put simply, Missouri's Forest Resource Assessment and Strategy is an evaluation of conditions, trends, threats and opportunities facing our forests. It's also a comprehensive strategy for sustaining these resources and the benefits and services we expect from them.

There are three important themes in Missouri's Forest Resource Assessment and Strategy:

- Missouri's trees and forests contribute greatly to our quality of life. Additionally, depending on how they are managed, trees and forests offer tremendous potential to help alleviate many of our state's biggest social, ecological and economic challenges.
- Our forests are changing rapidly, and how we address these changes will largely determine their capabilities in the future.
- Missourians play a critical role in determining how Missouri's forests will look and function into the future.

We hope to reacquaint Missourians with the trees and forests upon which we all depend, explore the forces that are changing them and highlight ways to ensure that future generations can enjoy the same forest benefits that we enjoy today. We encourage you and your family to rediscover the splendor of Missouri's majestic woodlands. ▲



Our Precious Forests

A Natural Treasure

Missouri's forests keep us healthy and happy.

by GUS RAEKER

DAVID STONNER

View of the misty Ozark mountains from
Stegall Mountain on Peck Ranch.

All of us benefit from Missouri's forests. Our trees protect soil from erosion, filter the water we drink and clean the air we breathe. They provide shade in the summer and fuel in the winter. Living trees shelter plants and animals, and when it's time for harvest, those same trees become lumber used to build our homes. In addition to their practical value, trees provide us with stunning scenery, memorable recreational opportunities and an important connection to the natural world.

Missouri is well endowed with trees. Vast blocks of forest in the Ozarks cover millions of continuous acres, and wooded corridors line most Missouri streams. Almost every farm or ranch contains forest land, either as woodlots or windbreaks. We also have countless trees shading our urban streets, enhancing our parks and yards and enriching our conservation areas.

In all their forms and wherever they are found, Missouri's forests provide real benefits and services.

Soil and Water

Trees keep soil on the land and out of streams. Tree canopies, leaf litter and extensive root systems of forests offer such good protection to soils that erosion in forests is virtually nonexistent compared with cropland, pasture and areas of development.

Forests adjacent to streams are especially important. They help hold stream banks in place and filter pesticides, nutrients and sediments before they can reach the water.

They also offer shade, which is important for maintaining water temperatures suitable for the plants and animals that live there.

By intercepting precipitation, storing it and releasing it slowly, trees and forests reduce the volume of stormwater runoff, lessening the threat of flooding and keeping stream water levels more consistent and reliable.

These are just a few of the reasons Missouri's forests are able to produce clean streams, rivers and lakes. Clean water results in high-quality, affordable drinking water, great fishing and other premier recreational opportunities, as well as critical habitat for numerous plants and animals.

Clean Air

Forests produce much of the oxygen we breathe. This is important in itself. However, in recent years, we've seen concern growing over the amount of carbon dioxide released into the atmosphere through the burning of fossil fuels for heat, electricity and transportation. Much effort is being put into finding ways to reduce these emissions.

Forests are one of our greatest tools in the battle to reduce atmospheric carbon.

Missouri's forests already store more than 5 million tons of carbon, and this number continues to climb. Each year, an acre of forest captures between 1 and 4 tons of additional carbon.

It may sound odd, but forests effectively reduce atmospheric carbon even when they are harvested, as long as the forested land is not converted to a non-forest use in the process. Harvested trees used for forest products, such as lumber or furniture, continue to store carbon. Even harvesting trees for biofuels favors the carbon equation because we can leave underground the coal or oil necessary to produce the equivalent amount of energy. And, in time, the forest will grow back to capture the same amount—or even more—carbon in the future.

Although some fossil fuels are burned when harvesting and transporting forest products, the amount is typically a small fraction of the resources needed to extract other materials, such as metal and coal. This offers yet another way in which using tree products can help combat greenhouse gasses.

Forest Products

Missouri's forests are an important supplier of numerous wood products used not only in our state, but worldwide. Wood from Missouri's forests is used to make



White oak whiskey and wine barrels made from Missouri trees are just one of the many products from our forests.

furniture and cabinets, flooring, barrels, tool handles, charcoal, pallets, shavings, firewood and much more. Through the production of these and other wood products, Missouri's forest products industry contributes approximately \$5.7 billion to Missouri's economy annually, supports 31,700 jobs, and generates \$57 million each year in state sales tax.

Forest products have several environmental advantages over alternative resources:

- Trees and forests are renewable resources when managed properly. As trees are harvested, new trees quickly emerge and fill in the gaps left behind.
- Harvesting trees is generally much easier and less intrusive than the extraction of resources like metals, coal and oil.
- Wood products are generally biodegradable, recyclable or both.

- When done properly, the harvest of forest products can provide an economical means of improving forest health and wildlife habitat.

Community Trees and Forests

We have focused on the benefits of forests, but community trees also provide numerous benefits.

For example, trees reduce stormwater runoff in areas where there is a high concentration of buildings, streets and other impervious surfaces. This helps local governments and citizens save money by reducing the amount of stormwater that needs to be collected and treated.

People realize further benefits as community trees shade dwellings, reducing summer cooling costs. They also provide an oasis of shade when city temperatures become stifling hot. In the winter, trees help slow the wind, reducing winter heating bills.

Missouri's Forest Opportunity Areas

Identifying areas where a little extra effort pays big forest dividends

After considering the vast benefits and services provided by Missouri's forest resources and the considerable threats and opportunities we face for sustaining these benefits into the future, it quickly becomes apparent that we have our work cut out for us.

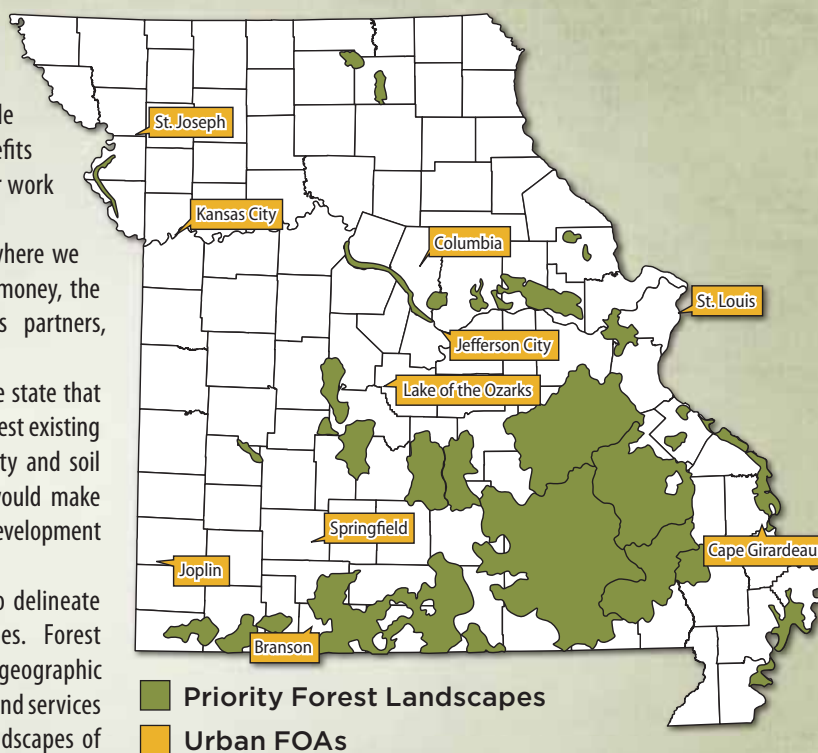
In order to direct our efforts and to identify those areas where we can achieve the most benefit for an investment of time and money, the Conservation Department, in consultation with numerous partners, developed a Forest Opportunity Model.

The model helps us evaluate forest opportunity areas in the state that meet the following two conditions: (1) areas that offer the greatest existing and potential forest benefits and services, such as biodiversity and soil and water conservation; and (2) areas where intervention would make the forest less vulnerable to poor harvest practices, urban development pressure, invasive insects and diseases.

Once we finished developing the model, we were able to delineate Forest Opportunity Areas and Priority Forest Landscapes. Forest Opportunity Areas are areas that offer Missouri's best geographic opportunities for sustaining forest resources and the benefits and services derived from them. Priority Forest Landscapes are large landscapes of concentrated Forest Opportunity Areas.

In addition, we also established 10 Urban Forest Opportunity Areas. These include the 10 largest metropolitan areas, based on population, and represent areas which stand to gain the most from urban forestry strategies.

The Conservation Department continues to work on forest improvement throughout the state. However, identifying Forest Opportunity Areas,



Priority Forest Landscapes and Urban Forest Opportunity Areas helps us focus on areas where a little more effort, in terms of collaborating conservation efforts with partners, actively seeking grants and pursuing other opportunities, will result in a lot more good. ▲



Barton Fen

DAVID STONER

Trees improve air quality and public health by reducing common urban air pollutants such as ozone, nitrogen dioxide and particulates. Trees also allow urban residents the opportunity to see and enjoy nature in the places where they live.

Wildlife Habitat and Biodiversity

In Missouri, we are fortunate to have very diverse landscapes. This great diversity is largely attributed to the fact that four unique ecological sections converge in Missouri. The glacially deposited Central Dissected Till Plains to the north, the Osage Plains to the west, the Ozark Highlands to the south, and the Mississippi Alluvial Basin in the Bootheel each have unique geology, soils, topography, weather and contain unique plant and animal communities.

The Missouri Natural Areas Program has classified some 85 distinct kinds of terrestrial natural communities (including 33 forest and woodland communities) and many other aquatic natural communities. These communities support more than 2,000 native plant species, more than 150 native breeding bird species, 108 native reptile and amphibian species, 67 native mammal species, 200 native fish species, 65 native mussel species, 32 native crayfish species and more than 130 native dragonfly and damselfly species.

Several of these species are found nowhere else but in Missouri!

Although these plants and animals reside in a wide variety of habitats and natural communities, many depend partially or wholly on healthy woodlands and forests. These include everything from ruffed grouse, which rarely leave the woods, to Ozark hellbenders, which live in Ozark streams but depend on forests and woodlands for clean, cool water.



Indigo bunting

NORRIS P. P. 2016

Recreation and Tourism

Missouri citizens are fortunate to have more than 2.6 million acres of federal and state publicly owned forestland within our state. These forests provide places for kids (young and old) to explore, as well as countless recreational opportunities, including hiking and backpacking, canoeing and kayaking, hunting and fishing, collecting mushrooms and berries, wildlife viewing, camping, picnicking, scenic drives and much more.

The importance of these opportunities is well demonstrated in the 2003 Conservation Opinion Survey, which reveals that more than half of Missourians consider spending time outdoors to be their most enjoyable activity.

In addition, Missouri's forests, both public and private, provide the backdrop for much of Missouri's tourism industry. It is hard to imagine a Saturday trip to Missouri's wine country, a weekend trip to the Current River for floating or a family vacation in Branson without the scenery afforded by Missouri's forests. ▲

Forces of Change

Altered fire patterns,
pests, poor harvesting practices and
demographic shifts all challenge the
sustainability of Missouri's forests.

by GUS RAEKER

CLIFF WHITE



Our Precious Forests



Missouri's forest resources are entering some of the most interesting and dynamic times we have ever known. Seldom have our forests faced so much threat, yet simultaneously posed so much opportunity to alleviate social and environmental challenges.

Conversion, Fragmentation and Parcelization

Eighty-two percent of Missouri's forestland is privately owned. This means that the future sustainability of Missouri's forests rests largely in the hands of private landowners. It also means that social, demographic and economic forces translate into major changes in the way those lands are managed and used.

In the coming decades, there will be a significant changing of the guard for Missouri's private forests. According to a 2006 survey conducted by the U.S. Forest Service, 17 percent of Missouri's family forestland is owned by people 75 years of age or older, and nearly 70 percent is owned by people 55 years or older. As these forests are passed on to heirs or sold to new owners, they often become more vulnerable to the threats of conversion, fragmentation and parcelization.

Currently, Missouri's net forest acreage is increasing. However, conversion to pasture, cropland or urban development is still a major concern in Missouri. We are losing many acres of high-benefit forest while gaining forests that produce fewer benefits, such as abandoned pastures reverting into honey locust thickets. These provide little wildlife habitat or forest product potential.

One of the side effects of forest conversion is fragmentation. Forest fragmentation refers to the breaking up of larger forest blocks into smaller, disconnected patches with a greater abundance of open land scattered throughout. Fragmentation negatively impacts many wildlife species that require large blocks of continuous forest. This can make forests more vulnerable to insect and disease outbreaks, invasive exotic plants and domestic animals that can harass native wildlife or alter their habitat.

Landowners are also subdividing their properties into smaller tracts. Given today's



One of the side effects of forest conversion is fragmentation, which breaks up larger blocks of forest into smaller, disconnected patches.

economic hardships, these temptations become especially great. A common practice among older landowners is to divide their property into multiple tracts of equal acreage to pass along to each of their children. This can only happen so many times before tract sizes get so small that management options become significantly limited.

A landowner who needs to sell 80 acres of woods, for example, is likely to make much more money by breaking the land up into eight 10-acre lots and selling them as home sites, instead of selling the 80 acres intact. Through this parcelization, significant forest acreage can be converted to other uses. Acres remaining forested often become fragmented and the smaller tract sizes make it much more difficult to manage for wildlife or forest products or to realize the full benefits of clean water and air associated with forests.

Woodland Fire

For thousands of years, fire has influenced Missouri's forest and woodland landscapes. Historically, Native Americans used fire for improving wildlife habitat and hunting opportunities, enhancing travel conditions and as defense against rival tribes. These fires resulted in a rich mosaic of prairie, glade, savanna, woodland and forest communities across the state.

As European settlers displaced Native Americans in the early 1800s, they continued the tradition of using fire to improve grazing



The future sustainability of Missouri's forests rests largely in the hands of private landowners.

opportunities for free-ranging livestock.

It has only been in the past 70 years that Missourians have begun suppressing wildfires. These efforts have been so successful that Missouri currently only has about 50,000 acres of wildfires per year. This is a remarkable achievement considering that earlier in the 20th century, up to one-third of the Ozarks burned each year.

Fire suppression has significantly improved the quality of Missouri's forest products and has greatly increased the safety of people and their property.

However, the removal of fire has also had negative impacts. For example, we are now seeing a strong shift from the fire-tolerant, shade-intolerant species that traditionally dominated our forests (mostly oaks and pines) to species such as maples and elms, which are not tolerant of fire, but are highly tolerant of shade.

This change has not come without consequences. A significant impact of the removal of fire is that our forests are becoming overcrowded. Wildfires historically thinned out forests as weak competitors and fire-intolerant species succumbed, while the survivors grew larger.

Trees now have to compete for light, water, nutrients and space in crowded forests, and they grow very slowly, produce less fruit and nuts and are more vulnerable to insects and diseases. What's more, the replacement of oaks with maples and elms means fewer acorns that many wildlife species require.

A crowded forest also shades the forest floor to the point that many wildflowers, grasses and other understory vegetation cannot survive. This trend affects many sensitive wildlife species that need this vegetation for food and cover.

Finally, the newcomer tree species are often much less desirable for forest products than the oaks they are replacing. This will eventually impact the type, amount and quality of wood products we are able to produce.

There are ways to maintain the health and diversity of our forests in the absence of wildfire. Examples include carefully planned and executed prescribed fire, timber harvesting and non-commercial thinning. These practices require active and well-thought-out management that can cost time and money. On the



Managing forests with prescribed fire can help maintain the health and diversity of our forests.

other hand, not managing your forest can have significant costs as well.

Growth, Harvest and Consumption

Missouri's forest products industry offers significant economic, ecologic and social benefits. Sustaining these benefits requires maintaining a careful balance of forest growth, natural mortality, harvesting and consumption. It's also important to ensure that forests are harvested in a conservation-friendly manner.

Fortunately, Missouri's forests are growing significantly more volume than is being harvested. From 2004 to 2008, Missouri's forests grew three times more than was harvested.

Missourians currently consume about twice the volume of forest products (approximately 411 million cubic feet of wood per year) as we harvest each year. With increasing interest in using woody biofuels for the generation of heat and electricity, Missouri's consumption numbers could soon skyrocket. In the face of this growth, it will be important to keep harvest rates at sustainable levels.

The manner in which forest products are

harvested is also an important consideration. Timber harvests can be conducted in ways that actually improve the health of the forest and promote future growth.

Harvesting on public lands involves rigorous safeguards to ensure that the resulting forest will meet these standards, but there are few safeguards to ensure similar results on private lands.

Missouri relies strictly on the goodwill of landowners and loggers to make conservation-friendly decisions. Sometimes this approach works well and sometimes it does not. The Conservation Department offers help to private landowners who want to make conservation-friendly decisions with their forest through technical assistance to landowners, information on the best ways to manage forests and through logger training.

Invasive Plants, Insects, Diseases and Weather

Numerous exotic invasive plants are becoming a nuisance. They crowd out native plants, impede tree regeneration, reduce forest management options, degrade forest health and wildlife habitat and minimize recreational opportunities. Of Missouri's 800-plus non-native plant species, 37 have become serious problems.

Some of the worst culprits include bush honeysuckle, garlic mustard, Japanese honeysuckle, autumn olive, wintercreeper and multiflora rose.

Missouri trees and forests also face a large number of insect and disease pests. Some of our most prominent threats are exotic species that have not yet developed enough natural predators to keep their numbers in check. Examples include the emerald ash borer, the gypsy moth and the Asian longhorn beetle.

Damage from these pests can range from cosmetic inconvenience to widespread destruction of entire forest communities. The damage is exacerbated when insects or diseases attack a forest already stressed from drought or site disturbance.

Unfavorable weather also becomes a challenge to forest health. In the past five years, Missouri has experienced incredible extremes in weather patterns and events. Three years of extreme drought were followed by two of the wettest years on record.

Additionally, many of our forests recently suf-

With increasing interest in using woody biofuels for the generation of heat and electricity, it will be important that we keep harvest rates at sustainable levels.





Garlic mustard

JIM RATHERT

ferred widespread damage from severe freezing rain, and on May 8, 2009, wind leveled 113,000 acres of Ozark forest.

Although there is not much we can do to stop the weather, we spend a lot of time dealing with its aftermath. Strategies need to be developed to ensure that Missouri's forest resources are as resilient to various weather conditions and events as possible, and that Missouri's agencies and people are well prepared and available to respond quickly to disasters when they occur.

Community Forestry Issues

Urban street tree inventories were conducted by the Conservation Department in 44 Missouri towns in 1989 and 1999. A comparison of results shows significant changes in Missouri's community forests.

Communities now have more street trees. In 1989, there were 46.2 trees per mile, and in 1999 there were 62.9 trees per mile. However, average tree condition declined during this period. In 1989, 66 percent of community trees were good or excellent, compared to only 24 percent in 1999. This underscores the need to maintain trees throughout their life and then remove them as their condition deteriorates.

The inventory also shows that Missouri's community forests are becoming more diverse. The top six tree species constituted 53 percent of those surveyed in 1989, as compared to 37 per-



Emerald ash borer

KOPPAJOL PAO HONG



Bush honeysuckle

JIM RATHERT

Exotic invasive species are becoming a nuisance to Missouri trees and forests. Some of the worst culprits are pictured here.

cent found in 1999. Having a diversity of tree species helps reduce the vulnerability of a community forest to devastation from such threats as emerald ash borer and Dutch elm disease.

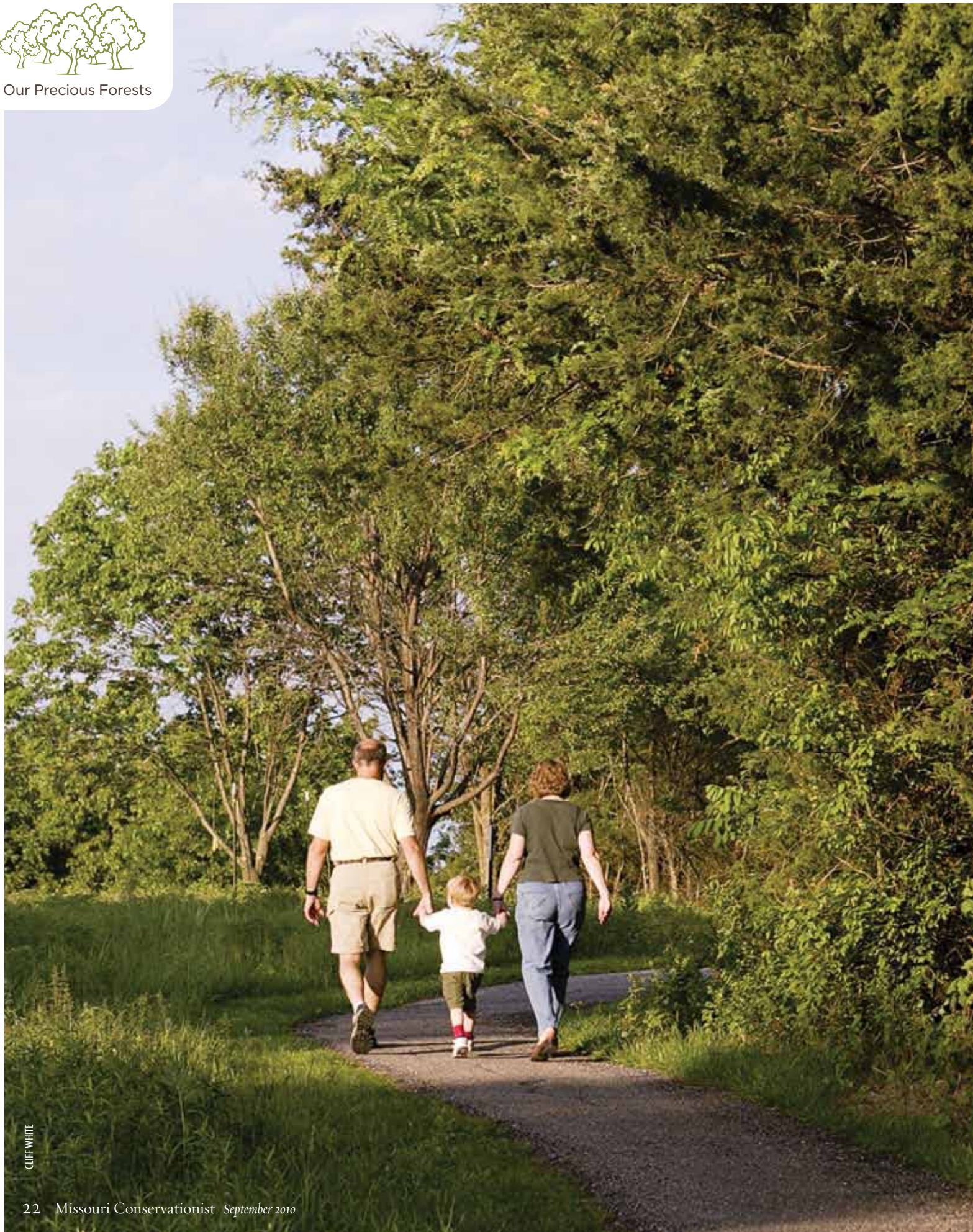
In 1999, 12 percent of all community trees were topped, making them vulnerable to pests and diseases and shortening their life spans. Topping also weakens trees, turning them into community hazards. Despite extensive efforts of the Missouri Community Forestry Council to put an end to this practice, tree topping continues to be a major community tree problem today.

Because of the vast economic, social and environmental benefits provided by community trees and forests, it is helpful to think of them as a critical component of a city's green infrastructure.

Like all other types of infrastructure, however, trees and forests need investment in order to maintain and sustain their benefits into the future. ▲



Our Precious Forests



CLIFF WHITE



Get Into the Forest!

Even if you don't own woodlands, you can help Missouri's forest resources. *by* GUS RAEKER

Recreation in the forest helps restore our connection, appreciation and understanding of the natural world. Missouri offers many opportunities to get into the forests.

We all play a role in shaping the future of Missouri's forests. Just as trees and the habitats they live in contribute in many ways to our quality of life, the actions we take in our everyday lives impact our forests.

Our connections to the forest are often not direct or obvious, but they are significant. They include the choices we make as consumers, the way we teach and raise our children, whether or not we recycle and the manner in which we manage our property, whether a small yard or large acreage.

We can improve our forests more dramatically by performing actions that directly benefit them. Follow-

Volunteers for the Ozark Trail Association build a new section of trail on the Courtois Section of the Ozark Trail.

ing, you'll find a number of ways that people can impact our forests. What may be the most important suggestion, however, is for people to get out in the forest and get acquainted with it. It's a simple fact that we prize and protect what we use and enjoy.

Enjoy Missouri's Forests

Recreation in the forest helps restore our connection, appreciation and understanding of the natural world. Natural, wholesome recreation also helps to cement family ties, so be sure to include your kids.

Missouri offers many opportunities to get out into our trees and forests. Trails wind through Missouri woodlands. Some of the trails are challenging, some are easy. They are available for a variety of uses, including hiking, biking and horseback riding, as well as walking.

The less adventurous may prefer taking drives through forested areas to see trees flowering in spring



or to observe fall colors. Or, you might visit your local park for a family picnic.

Missouri's rivers are another pathway into forests. Floating, fishing or just visiting a gravel bar to read for a few hours in a lawn chair or to wade in the water are great ways to enjoy the quiet beauty of the woods. The woods also offer tremendous opportunities for camping, hunting, wildlife watching, berry picking and much more.

Use Missouri Forest Products

Conservation-minded consumers try to follow the concept of reduce, reuse and recycle whenever possible. However, the consumption of forest products harvested sustainably also helps support healthy forests and wildlife habitat. In fact, forest products are often much more environmentally friendly than alternative products.

For instance, it is more sustainable to install oak hardwood flooring grown in the Ozarks than to install a bamboo floor that had to be shipped all the way from Asia, or a vinyl floor, which is neither renewable nor biodegradable. As a bonus, using homegrown materials keeps the economic benefits of your purchase in Missouri.

How do you know if forest products are being harvested sustainably? This gets a little tricky. Some forest products now include green certification stamps of sustainability through the Forest Stewardship Council or the Sustainable Forestry Initiative.

While these programs do a good job of recognizing sustainably managed forests and forest products, there is currently very little enrolled acreage in Missouri. This does not mean that Missouri's forests are not managed well. Rather, the lack of enrollment reflects the fact that certification is expensive.

Given that Missouri's forests are currently growing about three times as much volume as is being harvested each year provides some indication of our sustainability. As the cost of certification is reduced or the benefits increase, more forest acreage in Missouri will likely become "green certified." In the meantime, we suggest buying Missouri-grown forest products when possible, and green-certified Missouri forest products as they become available.

In all consumer decisions, the conservation-minded should consume the resources they need but avoid being wasteful.

Manage Forestland Responsibly

Because the vast majority of Missouri's forestland is privately owned, landowners have an especially important role to play in sustaining our forests. Managing your woods for



Private landowners can manage their forests for the next generation with the help of the Conservation Department.

maximum long-term benefits, such as for wildlife, recreation or timber, often requires proactive management.

Private landowners can benefit greatly by contacting a Conservation Department forester or private forestry consultant to learn more about their forestland and the opportunities it may present.

Although forest management includes much more than just harvesting, the advice of a professional forester is especially important if you are considering conducting a timber harvest. In fact, the Conservation Department recently launched a new voluntary "Call Before You Cut" campaign to help provide information to landowners who are considering a timber harvest. More information can be obtained at callb4ucut.com or 877-564-7483. Trained foresters can help you decide if your forest is ready for a harvest and make sure that such management activities maintain or enhance the health, productivity and wildlife value of your forest.

By also using a Master Logger™ or logger who has attended the Missouri Forest Product Association's Professional Timber Harvester Training, you can further ensure that your logger will use best management practices to protect soil and water resources.

The Missouri Heritage Woods Program and the Missouri Tree Farm Program recognize landowners for good work and provide educational resources to keep landowners abreast of current threats and opportunities facing private forests.

The newly established Forest and Woodlands Association of Missouri (FWAM) is a body of people interested in promoting forestry in the state of Missouri and is made up of woodland owners, tree farmers and other people interested in rural or urban forestry issues. Anyone can join FWAM. The goals of FWAM are to promote and advocate for sustainable forest management, keep FWAM members updated on forestry information and related legislative actions, and to serve as an educational resource for children.

Forest Sustainability

Although we all want our forest resources to be sustainable, it is not always clear what sustainable means. The Seven Criteria of Forest Sustainability, established through an international process in 1993, serves as one of the best and most prominent definitions of forest sustainability to this day:

- 1) Conserve forest diversity
- 2) Maintain forest productivity
- 3) Maintain forest health and vitality
- 4) Conserve and maintain soil and water resources
- 5) Maintain forests contributions to global carbon cycles
- 6) Maintain and enhance the socioeconomic benefits to meet the needs of communities
- 7) Provide legal, institutional and economic framework for forest conservation and sustainable management.

No person, business, agency or organization can single-handedly ensure a sustainable future for Missouri's trees and forests. In fact, one of the primary motivations for establishing Missouri's Forest Resource Assessment and Strategy was the acknowledgement that the Conservation Department cannot by itself secure the future of our forests. It is critical for us to recruit help from numerous partners and all Missouri citizens.

To learn more about Missouri's Forest Resource Assessment and Strategy and find out how you can get involved, visit www.MissouriConservation.org/n2857 or contact your regional Conservation Department office (see Page 3).

Leave a Conservation Legacy

In order to ensure that the woods you have worked so hard to maintain will remain an important natural asset into the future, consider donating a conservation easement to a land trust. Conservation easements allow landowners to keep their land and generally manage it as they see fit. However, easements typically include legal restrictions on developing and subdividing the property, and often include provisions for managing forests sustainably.



Two turkey hunters take advantage of the cover in the forests at Sugar Creek Conservation Area near Kirksville.

In many cases, these are restrictions that landowners already place on themselves. However, the easement provides them peace of mind for the future of the land, and it often allows landowners significant tax benefits as well. To find a local land trust, contact your regional Conservation Department office (Page 3).

Plant Trees and Plant Them Correctly

Simply planting a tree in your yard can make an important contribution to forest sustainability. Take the time to pick a tree that is well-suited to the site, make sure that it is planted correctly and maintain the tree into the future.

Planting and maintaining a tree is a good way to get your kids involved and interested in the outdoors. It also helps instill in them a conservation ethic. For more information on choosing a tree and learning how to care for it, contact your local nursery, arborist or forester.

Don't Import Forest Pests

Some of the biggest threats facing our forests are exotic plants, animals and diseases. Avoid planting invasive plants, such as bush honeysuckle or autumn olive, in your yard or property. If you already have these plants, eliminate them if possible. They can quickly spread far beyond your boundaries and diminish forest health and ecological value across the landscape.

Also be aware of and avoid introducing invasive insects and diseases. Exotic insect pests pose a great threat to Missouri's trees and forests. One of the primary ways that some forest insect pests spread is through the transportation of firewood. In fact, there is currently great concern that the movement of firewood could spread emerald ash borer to the point that we won't have any ash trees in the future. There is nothing wrong with using firewood. However, we strongly encourage people to obtain it locally where you plan to use it.

Consider a Career as a Forester

If you're looking for a future career path, consider a career in forestry. Forestry is exciting, enjoyable and rewarding. Foresters work with private landowners, cities and communities. They manage lands to ensure that forest resources remain healthy, productive and wildlife friendly and provide the myriad of benefits we have come to expect from them. Foresters also engage in demanding physical work, such as fighting fires and conducting forest inventories.

To many people, forestry careers provide the perfect combination of outside work and technically demanding labor. Currently, foresters are needed in both the public



A family plants spruce in their backyard. Planting trees can make important contributions to forest sustainability.

and private sectors. Requirements typically include a four-year college degree in forestry.

Volunteer Your Labor and Expertise

The need for volunteers for conserving and sustaining Missouri's forests is huge, and opportunities are incredibly diverse. Here are a few examples of opportunities:

- Fire departments are often trying to recruit volunteers to help with wildfire suppression efforts.
- You can join a Master Naturalist chapter to obtain valuable conservation training, and use this knowledge to assist with various conservation projects.
- You can volunteer for your local city tree board to help ensure that trees are an important consideration in your city.
- Your local Audubon chapter, the Conservation Federation of Missouri, the National Wild Turkey Federation, the Ozark Regional Land Trust or The Nature Conservancy offer a number of volunteer opportunities. There are comparable organizations to suit almost any interest. For example, you can join the Native Plant Society, the Show-Me Missouri Back Country Horseman or the Gateway Off-Road Cyclists.

A little Internet research or some social networking among people who share your interests is likely to reveal an organization that suits you and provides you with the opportunity to make a difference in Missouri's forests. ▲



MICHAEL DOUGHERTY

Elk in the Arkansas Ozarks

ELK

HISTORY and RESTORATION

The plan to reestablish elk in a defined area will be proposed to the Conservation Commission in October.

Background

Elk were found throughout Missouri prior to European settlement. Historical accounts indicate elk were likely extirpated from the state by 1865. Prompted by citizen requests, the Department conducted an elk reintroduction feasibility study in 2000. Results of the study indicated that elk restoration in Missouri was biologically feasible in portions of the Ozarks, and statewide the public supported the restoration of elk. However, several considerations complicated the restoration of elk at the time. Due to chronic wasting disease and habitat concerns, the Commission suspended the Department's consideration of an elk restoration in 2001, and directed staff to facilitate additional discussions to determine if concerns regarding elk restoration could be addressed to the satisfaction of citizens.

Renewed Interest

A recent letter from the Rocky Mountain Elk Foundation, continued citizen interest in elk restoration and questions from Commissioners have stimulated the following up-

KEY POINTS TO REMEMBER ABOUT ELK RESTORATION IN MISSOURI

- Elk is a native species to Missouri, and restoring native species holds many benefits.
- Elk restoration will be limited to a targeted restoration zone in southeast Missouri.
- Elk restoration will include herd-management guidelines, with hunting as the primary tool to maintain an appropriate population.
- Elk restoration will include health protocols, such as disease testing, to ensure the health of domestic livestock and other wildlife.
- Elk restoration will include plans for dealing with elk that wander where they are not welcome.
- Elk restoration in other states has provided resource and economic benefits.

date on biological and social issues associated with elk restoration in Missouri. In fact, 90 percent of acreage in the focused restoration zone is held by public and private landowners who have indicated their support of the effort. Recent elk restoration successes in Arkansas, Kentucky, Tennessee, Wisconsin and Pennsylvania are also encouraging. The following recommendations are proposed to address previous concerns and may be modified according to citizen input and Commission guidance if a restoration effort moves forward.

Elk Restoration Zone

A defined geography around Peck Ranch Conservation Area was identified in the 2000 elk reintroduction feasibility study as a potential restoration site. The restoration zone covered parts of Carter, Shannon and Reynolds counties. This landscape was chosen because of: 1) suitable habitat conditions, 2) high public land ownership, 3) low public road density and 4) low density of row crops and livestock. The map on this page outlines the area proposed in the 2000 elk reintroduction feasibility study. This range could be modified as a result of input from citizens.

Stakeholder Involvement

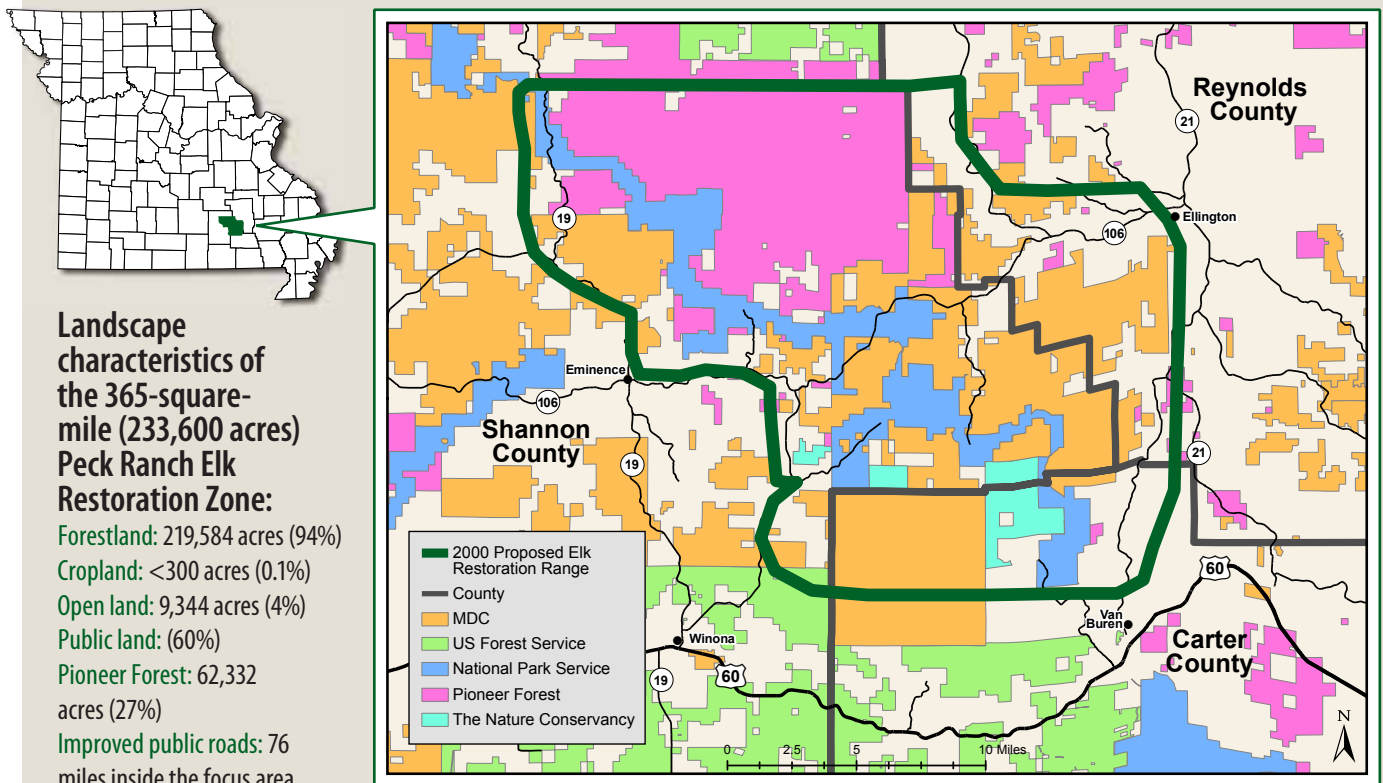
Successful management of Missouri's natural resources involves a partnership with citizens, organizations and agencies. The Department is actively engaging citizens and organizations to gather input prior to a restoration effort being presented to the Conservation Commission in the following ways:

- Holding three informational meetings at locations around the restoration zone.
- Continuing to provide restoration information on the MDC website, which includes the opportunity for public comment, as well as a video, information in the *Missouri Conservationist* and a brochure to inform citizens.
- Continuing to engage citizens state and federal agencies, and conservation and agriculture organizations.

Proposed Restoration Protocols

DISEASE TESTING: Working in cooperation with the Missouri Department of Agriculture, we have developed stringent animal health testing guidelines to ensure that Missouri's wildlife and livestock remain healthy. The protocol will require that all free-ranging elk brought into

THE PECK RANCH ELK RESTORATION ZONE





Missouri originate from herds with no evidence of health issues and would go through extensive disease testing prior to moving the animals to Missouri and prior to release. In addition, since 2000, there has been significant progress made in our understanding of chronic wasting disease, including a live-animal test for elk. Other states with successful elk restoration projects have followed similar health protocols that have resulted in no cases of disease transmission to livestock or wildlife.

RELEASE PROTOCOL: We recommend a “soft release.” In a soft release elk would be confined for five to six weeks in the restoration zone on MDC property. Prior to release, the health of the elk would be evaluated, their movements minimized and they would be fitted with radio telemetry collars. This type of release holds many benefits over a “hard release.” A temporary holding facility could be constructed at Peck Ranch Conservation Area.

HERD MANAGEMENT AND MONITORING: The Department has developed—and would strictly enforce—procedures to address any elk that strays onto land where they are not welcome. Survival and reproductive rates and population growth would be monitored and, once elk were established, hunting would be used to maintain numbers at desired levels.

ECONOMIC BENEFITS: Experience from other states such as Arkansas, Pennsylvania and Kentucky indicate that considerable economic benefits can be generated from elk ecotourism and hunting. Information highlighting the

Experience from other states indicates that considerable economic benefits can be generated from elk ecotourism and hunting.

potential economic impacts of an elk restoration will be available to local chambers of commerce and others.

FUNDING: The Department will seek outside funding to help pay for a restoration program. The Rocky Mountain Elk Foundation has provided financial support for restoration programs in other states and has recently expressed interest in contributing to elk restoration in Missouri.

HABITAT MANAGEMENT: The Department would work—providing technical and financial assistance—with landowners wanting to improve habitat conditions for elk on their property. Conservation areas in the elk restoration zone are currently managed in ways (e.g., green browse production, timber harvest, woodland and glade restoration) that encourage the elk to remain on those lands.

Share Your Comments

We value citizen input and welcome comments from all interested parties. Comments can be made online at www.MissouriConservation.org/contact-us under “Elk Restoration Comments” or mailed to: Missouri Department of Conservation, Director’s Office, PO Box 180, Jefferson City, MO 65102–0180.▲

Hunting and Fishing Calendar

FISHING

Black Bass (certain Ozark streams, see the *Wildlife Code*)

5/22/10 2/28/11

impoundments and other streams year-round

Bullfrogs and Green Frogs Sunset Midnight

6/30/10 10/31/10

Nongame Fish Giggling 9/15/10 1/31/11

Trout Parks 3/01/10 10/31/10

HUNTING

Coyotes 5/10/10 3/31/11

Deer

Firearms

Urban 10/08/10 10/11/10

Early Youth 10/30/10 10/31/10

November 11/13/10 11/23/10

Antlerless 11/24/10 12/05/10

Muzzleloader 12/18/10 12/28/10

Late Youth 1/01/11 1/02/11

Archery

9/15/10 11/12/10

11/24/10 1/15/11

Doves 9/01/10 11/09/10

Furbearers 11/15/10 1/31/11

Groundhog 5/10/10 12/15/10

Pheasant

Youth (North Zone only) 10/30/10 10/31/10

North Zone 11/01/10 1/15/11

Southern Zone 12/01/10 12/12/10

Quail 11/01/10 1/15/11

Youth 10/30/10 10/31/10

Rabbits 10/01/10 2/15/11

Rails (Sora and Virginia) 9/01/10 11/09/10

Squirrels 5/22/10 2/15/11

Teal 9/11/10 9/26/10

Turkey

Fall Firearms 10/01/10 10/31/10

Archery 9/15/10 11/12/10

11/24/10 1/15/11

Waterfowl please see the *Waterfowl Hunting Digest* or see www.MissouriConservation.org/7573

Wilson's (common) snipe 9/01/10 12/16/10

Woodcock 10/15/10 11/28/10

TRAPPING

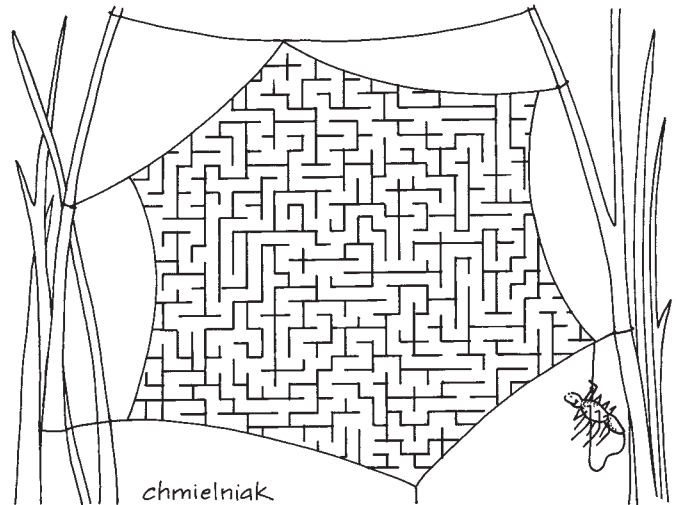
Beavers and Nutria 11/15/10 3/31/11

Furbearers 11/15/10 1/31/11

Otters and Muskrats 11/15/10 2/20/11

For complete information about seasons, limits, methods and restrictions, consult the *Wildlife Code* and the current summaries of *Missouri Hunting and Trapping Regulations* and *Missouri Fishing Regulations*, the *Fall Deer and Turkey Hunting Regulations and Information*, the *Waterfowl Hunting Digest* and the *Migratory Bird Hunting Digest*. For more information visit www.MissouriConservation.org/8707 or permit vendors.

The Department of Conservation's computerized point-of-sale system allows you to purchase or replace your permits through local vendors or by phone. The toll-free number is 800-392-4115. Allow 10 days for delivery of telephone purchases. To purchase permits online go to www.wildlifelicense.com/mo/.



Contributors

GUS RAEKER is a forestry district supervisor for MDC in the St. Louis Region. He has spent the past two years developing Missouri's Forest Resource Assessment and Strategy. In his spare time, Gus enjoys working/playing on his family's "back forty," and otherwise enjoying Missouri's outdoor splendor.



Buy firewood
where you'll burn it

**DON'T MOVE
FIREWOOD**

Don't spread forest pests.



Emerald ash borer

WHAT IS IT?

Monarch butterfly

On the back cover and right is a monarch butterfly by Noppadol Paothong. Monarchs are found in a variety of habitats: fields and grasslands, roadsides and urban and suburban plantings. They are famous for their annual migration to overwinter in Mexico. Missourians are encouraged to plant milkweeds. Monarchs lay their eggs on the underside of the milkweed leaves. The caterpillars eat the plant and the adults eat the nectar from flowers. Track the monarchs' migration at www.learner.org/jnorth/monarch.



AGENT NOTES

Protecting our forests from arsonists

FORESTS ARE ONE of Missouri's greatest renewable resources, providing many economic, environmental and social benefits. They protect hillsides from erosion, keeping streams and rivers clean. They filter the air, soften the extremes of the weather and add beauty to cities and towns. Much of Missouri's recreation and tourism industry is centered in the forested regions of the state. Forests cover about a third of the state and contain some of the finest oak, walnut, pine and red cedar found anywhere. Not to mention, the forest is home to many plants and animals.

Every year forestry staff and community fire fighters respond to numerous forest fires. Some of these fires are naturally occurring, whereas others are the result of a person deliberately setting them ablaze. Arsonists can destroy property, deplete community fire-fighting funds and needlessly endanger lives. An active arsonist will set many fires. A 2009 arsonist case in Henry County tied a local resident to three of 33 reported fires in a three-month period. The apprehension and conviction of this arsonist was a community effort involving volunteer firemen, the sheriff's office, the Missouri State Highway Patrol, the Conservation Department and local citizens.

Conservation agents receive training in arson investigations and readily respond to fires with a questionable ignition site or source. If an arrest is made, the individual is charged under Missouri State Statute 569.055. It states, "A person commits the crime of knowingly burning or exploding when he knowingly damages property of another by starting a fire or causing an explosion." This is a class D felony.

To aid in combating illegal activity, the Conservation Department and the Conservation Federation of Missouri have teamed to form the Operation Forest Arson/Operation Game Thief hotline. The hotline is manned 24 hours a day, seven days a week. You may remain anonymous and can ask to be considered for a reward. To report possible violations contact your local conservation agent or use the Operation Forest Arson/Operation Game Thief hotline at 1-800-392-1111.



Kevin Polley is the conservation agent for Pettis County. If you would like to contact the agent for your county, phone your regional Conservation office listed on Page 3.

WHAT IS IT?

Our photographers have been busy exploring the intricacies of the Missouri outdoors. See if you can guess this month's natural wonder. The answer is revealed on the inside of this back cover.



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www.MissouriConservation.org/15287

Free to Missouri households

